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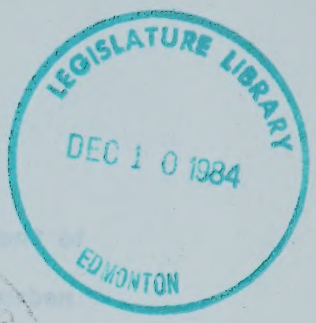
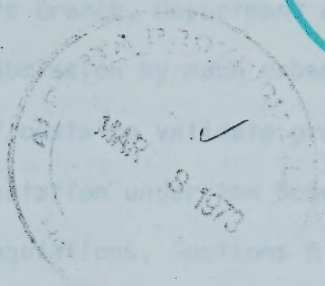


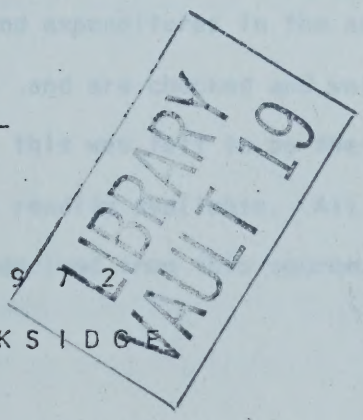


REPORT

SCHOOL BUSING COSTS,

SCHOOL BUILDING COSTS,

AND RELATED CONSIDERATIONS



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MAY 5, 1972

J. H. BLOCKSIDGE

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SCHOOL BUSSING COSTS

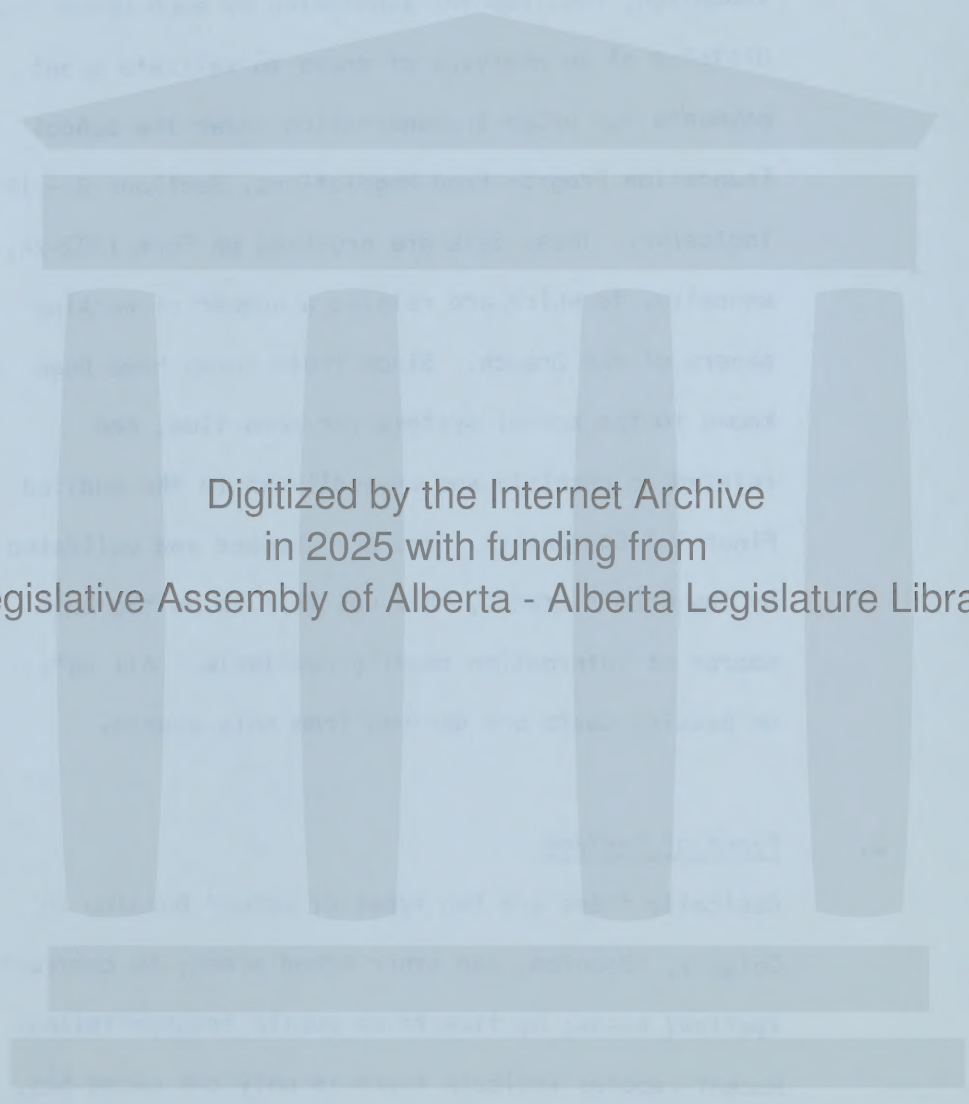
A.

1. Source of Information

Each year the School Grants Branch, Department of Education, requires the submission by each urban district of an analysis of costs to validate grant payments for urban transportation under the School Foundation Program Fund Regulations, Sections 8 - 10 inclusive. These data are provided on Form 1302-2A, annually, to which are related a number of working papers of the Branch. Since these forms have been known to the school systems for some time, are related to receipts and expenditures in the audited Financial Statements, and are checked and validated by the Grants Branch, this was felt to be the best source of information readily available. All data on bussing costs are derived from this source.

2. Types of Systems

Basically there are two types of school bussing in Calgary, Edmonton, and other urban areas; by contract (yellow) buses; by tickets on public transportation. Recent records indicate there is only one owned bus, for which an annual depreciation allowance is made and



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its cost figures are thus felt to be realistic, and in line with contract costs.

3. Costs in Calgary and Edmonton

Annually each system validates its costs with the Department of Education (Form 1302-2A), from which data have been assembled in TABLE I, which covers 1971 and 1970 individually. (1971 figures have not been completely checked by the Department: School Grants Branch. However these figures are probably very close, and short of waiting some time for this checking they are the best information readily available).

From Table I costs of contract bussing in Calgary and Edmonton break down as shown in TABLE IV.

TABLE IV

Calgary and Edmonton
Contract Bussing Costs Per Student

System	Number	Reported Cost to System	90% of Rented Cost to System	Claim Paid* SFPF
		1971		
Calgary Sch. Dist.#19	2,295	106.11	95.50	95.00
Calgary R.C.S. #1	444	93.63	84.27	93.63
Edmonton Sch.Dist. #7	5,367.5	105.11	95.65	95.00
Edmonton R.C.S. #7	1,658.	81.19	73.08	78.88
TOTAL	9,762	Av.$100.76	Av.$ 90.69	Av.92.20
		1970		
Calgary Sch.Dist.#19	2,238	137.56	123.81	95.00
Calgary R.C.S. #1	534.5	143.53	129.17	97.66
Edmonton Sch.Dist.#7	4,871	104.03	93.63	95.00
Edmonton R.C.S. #7	1,725.5	94.02	84.62	78.88
TOTAL	9,369.	Av.112.45	Av.101.20	Av. 92.18

*Claim is paid at the lowest per student cost in each school system in the period 1967 to date or $95.00 whichever is the lesser.

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Corresponding data from Table I regarding total costs of contract bussing in Calgary and Edmonton are shown in Table V.

TABLE V

Calgary and Edmonton
Total Costs of Contract Bussing

System	Reported Cost to System	90% of Reported Cost to System	Claim Paid SFPF
	1971		
Calgary School Dist. #19	$243,252.	$218,927.	$217,788.
Calgary R.C.S. #1	41,572.	37,415.	41,572.
Edmonton School Dist. #7	564,203.	507,783.	509,913.
Edmonton R.C.S. #7	134,623.	121,161.	130,783.
TOTAL	$983,650.	$885,286.	$900,056.
	1970		
Calgary School Dist. #19	$307,865.	$277,079.	$212,610.
Calgary R.C.S #1	76,715.	69,044.	52,199.
Edmonton School Dist. #7	506,734.	456,061.	462,745.
Edmonton R.C.S. #7	162,229.	146,006.	136,107.
TOTAL	$1,053,543.	$948,190.	$863,661.

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Costs of ticket systems of transportation (i.e. the issuing of passes to use the city transportation system to get to and from school) are summarized from TABLE I in TABLES VI and VII for simpler reference.

TABLE VI

Calgary and Edmonton
Ticket Transportation Costs Per Student

System	Number	Reported Cost per Student to System	90% of Reported Cost to System	Claim Paid* by SFPF
		1971		
Calgary School Dist. #19	1,504	44.21	39.79	33.43
Calgary R.C.S. #1	3,741	48.84	43.96	37.43
Edmonton Sch.Dist.#7	3,600	47.96	43.16	25.86
Edmonton R.C.S. #1	3,579	64.59	58.13	14.24
TOTAL	12,424	Av.52.56	Av. 47.30	Av. 26.91
		1970		
Calgary Sch.Dist. #19	2,727.5	37.14	33.43	33.43
Calgary R.C.S. #1	3,413	47.17	42.45	37.43
Edmonton Sch.Dist. #7	4,745	47.74	42.97	25.86
Edmonton R.C.S. #7	3,454.5	67.75	60.97	14.24
TOTAL	14,340.	Av. 49.71	Av. 45.36	Av. 26.56

*Payment under the SFPFund is at 90% of the lowest per student cost in each school system in the period 1967 to date.

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TABLE VII

Calgary and Edmonton
Total Costs of Ticket Transportation

System	Reported Cost to System	90% of Reported Cost to System	Claim Paid SFPF
	1971		
Calgary Sch. Dist. #19	66,495.	59,846.	50,279.
Calgary R.C.S. #1	182,710.	164,439.	140,026.
Edmonton Sch.Dist. #7	172,651.	155,386.	93,096.
Calgary R.C.S. #7	231,156.	208,040.	50,965.
TOTAL	653,012.	587,711.	334,366.
	1970		
Calgary Sch. Dist. #19	101,302.	91,172.	91,180.
Calgary R.C.S. #1	160,988.	144,889.	127,749.
Edmonton Sch. Dist. #7	226,522.	203,870.	122,706.
Edmonton R.C.S #7	234,034.	210,631.	49,192.
TOTAL	712,846.	650,562.	390,827.

It is understood that the Edmonton School Systems levy a monthly fee on all students who ride on the public transportation system (ticket system of bussing) to and from school. This is an exercise of local autonomy which is not reflected in these data in that only those who travel 1 1/2 miles or more are reported on at cost for their transportation, and any privately operated

extra collection is neither declared, nor subtracted from the cost.

Relating these costs to the cost of school buildings first requires that school building costs be examined, which is done in the next section (B. School Building Costs.) However, some comments and observations are made, as a related diversion from the exact task of this report.

4. Urban Bussing Costs in Relation to Support

Since it will be the intention of this report in Part C to compare bussing costs and school building support costs, it seems to be evident that if there is any requirement to bus students in lieu of provision of new schools or additions school systems may complain that added locally-supported costs are being foisted upon them beyond their budgeted means to pay. A brief diversion is therefore included to look at this matter, since the data are available in this section.

From previous tables the following observations may be made:

(a) Regarding per pupil costs reported by school boards, in 1970 the average was $112.45 as against an average support of $92.18. In 1971 the reported average cost was $100.70 as against an average support of $92.20.

(The range of costs to the school boards in 1970 was from $94.02 to $143.53, and in 1971 from $81.19 to $106.11, which seems to be inordinately disparate, but unexplained).

(b) Total reported costs for contract bussing were indicated in 1970 to be $1,053,543.00 as against $863,661.00 SFPF support, leaving $179,882.00 to local support. In 1971 reported cost was $983,650.00, SFPF support $900,056.00, leaving $83,594.00 to local support.

(c) Regarding the cost of ticket transportation, in 1970 reported per pupil cost averaged $49.71 as against support at $26.56, (with a similarly wide range of reported costs from $37.14 to $67.75 in 1970, and a range from $44.21 to $64.59 in 1971). Total reported costs in 1970 were $712,846 as against $390,827 SFPF support, leaving $322,037. to local support. In 1971 total reported cost of ticket bussing was $653,012. against SFPF support of $334,366. leaving $318,646.00 to local support.

(d) Putting contract bussing and ticket transportation together, in 1970 local support amounted to $521,919.00 (approximately 30% of the total reported cost of $1,766,389.) In 1971 local support amounted to $402,240. (approximately 25% of the total reported cost of $1,636,662.)

(e) If one conceives that 90% of cost is "reasonable reimbursement" (this is about the support given to rural bus transportation) the net SFPF support would have had to be increased by $345,264. in 1970, and in 1971 by $238,575.00, which would then have reduced local support to 10% of total reported cost. (These matters of difference between reported cost and SFPF support are dealt with in Column 8, and 9 of TABLES I, II and III.)

(f) In order to complete the picture, Other Urban Centres are dealt with in TABLES II and III. In essence, to equalize SFPF support to total reported cost in other urban centres would have cost in 1970 $45,902. and in 1971 $31,102. To equalize SFPF support to 90% of reported cost in 1970 would have cost $19,110. and in 1971 would have cost $2,292.

(g) In summary "equalization" costs would have been as shown in TABLE VIII.

(h) Thus, if it is conceived that urban support may need to be brought into line with total local cost, or 90% of cost because it is required city-wide to reduce or eliminate need for new building it would appear from the 1971 figures there would be for the urban centres an added cost of:

Full support $430,000.00 - $435,000.00

90% of cost $240,000.00 - $245,000.00

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TABLE VIII

Cost of Equalizing SFPF Support
Up to Reported Cost & 90% of Reported Cost

System	Up to 100% of Reported Cost			Up to 90% of Reported Cost		
	Contract	Ticket	Total	Contract	Ticket	Total
			1971			
	$	$	$	$	$	$
Calgary & Edmonton	83,594.	+ 318,646.	= 402,240.	-14,770.	+ 253,345.	= 238,575.
Other Urban	29,759.	+ 1,343.	= 31,102.	1,395.	+ 897.	= 2.292.
	113,353.	+ 319,989.	= 433,342.	13,375.	+ 254,242.	= 240,867.
			1970			
	$	$	$	$	$	$
Calgary & Edmonton	189,882.	+ 332,037.	= 521,919.	85,529.	+ 259,735.	= 345,264.
Other Urban	44,244.	+ 1,658.	= 45,902.	17,796.	+ 1,314.	= 19,110.
	234,126.	+ 333,695.	= 567,821.	103,325.	261,049.	= 364,374.

SCHOOL BUILDING COSTS

B.

1. Areas, Support, and Cost Comparisons.

Support limits as specified by current School Buildings Regulations (May 20, 1970) are $15.50 for Elementary, $16.25 for Junior and/or Senior High, and a pro-rated figure between these maximums where both types are incorporated into the same building,which varies with each such project. For estimating purposes, based on the number of square feet of each type reorganized in 1971, a composite figure of $15.90 is commonly used, or even $16.00 for ease of multiplication.

Areas of schools vary not only because of larger or smaller enrolments but also because in smaller schools more square feet a student are recognized. Therefore there is no meaningful single square footage per student. Table VIII gives the maximum square footages possible under the School Buildings Regulations for a range of sizes of schools. Schools are also "rated" as to enrolment limits based on 30 students per home room.

For simplified estimating, support per student place runs broadly as follows, from small to large schools:

Type	Range of Cost per Student Place
Elementary	$ 1,300. - $ 1,000.
Junior High without Industrial Arts & Home Economics	$ 1,550. - $ 1,250.
Junior High with Industrial Arts & Home Economics	$ 2,000. - $ 1,550.

TABLE VIII

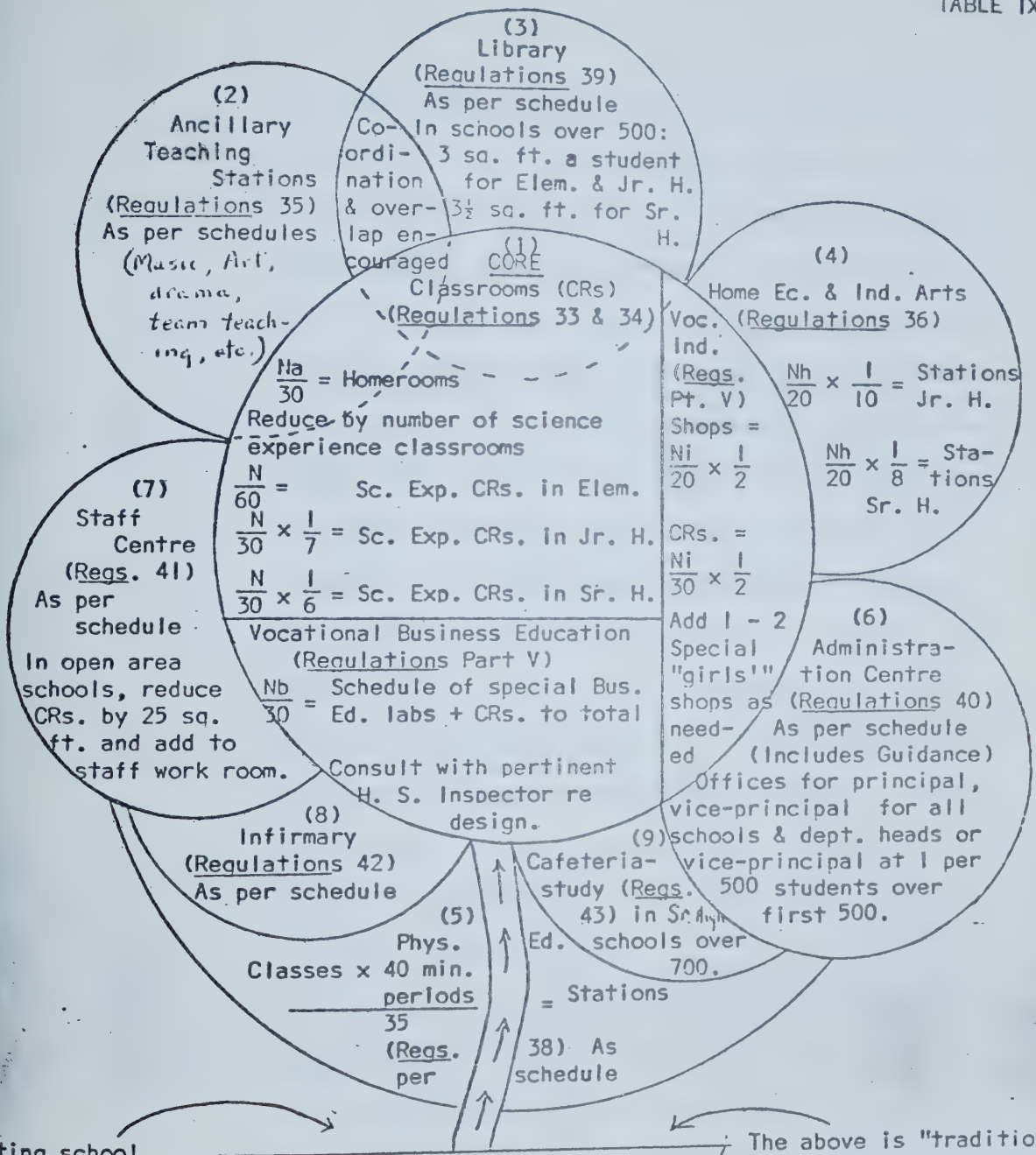
Gross Area per Student in New Schools
(School Buildings Regulations 1970)

Rooms	6	8	10	12	14	16	18	20	22	24
Rating	180	240	300	360	420	480	540	600	660	720
Elem.	80.1	81	74.8	70.7	76.6	72.7	70.1	67.3	68.1	66.8
Jr.High (Incl.	85.1	96.3	88.5	82	83.8	80.9	77	76.6	75.6	73.5
Ho.Ec.& Ind.A.)		125.5	111.8	101.4	109.2	103.1	97.1	94.4	91.8	88.3

NOTE 1: These areas were computed at the limits permitted by the School Building Regulations 1970; actual practice may cut these slightly. Additions cannot as readily be charted because of their extreme variability, but may be assumed to be slightly less, on the average.

NOTE 2: The "home room" at a 30-student ratio applies to classrooms. The other teaching stations (ancillary classrooms, phys. ed., industrial arts and home economics labs) are not weighted, and help to reduce average enrolments. See TABLE IX for the set-up of schools.

TABLE IX


(1) CORE
Classrooms (CRs) (Regulations 33 & 34)
Na/30 = Homerooms
Reduce by number of science experience classrooms
N/60 = Sc. Exp. CRs. in Elem.
N/30 × 1/7 = Sc. Exp. CRs. in Jr. H.
N/30 × 1/6 = Sc. Exp. CRs. in Sr. H.
Vocational Business Education (Regulations Part V)
Nb/30 = Schedule of special Bus. Ed. labs + CRs. to total
Consult with pertinent H. S. Inspector re design.
(2) Ancillary Teaching Stations (Regulations 35) As per schedules (Music, Art, drama, team teaching, etc.)
(3) Library (Regulations 39) As per schedule
Co-ordination & overlap encouraged
In schools over 500: 3 sq. ft. a student for Elem. & Jr. H. 3½ sq. ft. for Sr. H.
(4) Home Ec. & Ind. Arts Voc. (Regulations 36)
Ind. (Regs. Pt. V) Shops = Ni/20 × 1/2
CRs. = Ni/30 × 1/2
Add 1 - 2 Special "girls'" shops as needed
Nh/20 × 1/10 = Stations Jr. H.
Nh/20 × 1/8 = Stations Sr. H.
(5) Phys. Ed. Classes × 40 min. periods / 35 = Stations (Regs. 38) As per schedule
(6) Administration Centre (Regulations 40) As per schedule (Includes Guidance) Offices for principal, vice-principal for all schools & dept. heads or vice-principal at 1 per 500 students over first 500.
(7) Staff Centre (Regs. 41) As per schedule
In open area schools, reduce CRs. by 25 sq. ft. and add to staff work room.
(8) Infirmary (Regulations 42) As per schedule
(9) Cafeteria-study (Regs. 43) in Sr. H. Ed. schools over 700.

xisting school addition is yzed as a Total ol

vations (Regs. 10) may ace new construction.

Adjustments to School Plant
Attainable Curriculum
Intended Teaching Methods
Community Use
(Community Disadvantage Upgrading)
Support Limits-- See Regs. 18 & 19

The above is "traditional"-- schools are encouraged to adjust within each area above: e. g. open-area schools, large-small instruction group schools, etc. Each is sized to fulfil curriculum and function involved.

S:
no. of students in the school 3 years after expected opening
no. of matriculation & general program students in Sr. H. or N if school is Jr. H. or Elem.
no. of Vocational Business Education students
no. of students to take Home Economics or Industrial Arts
no. of Vocational Industrial/Technical students

In order to illustrate the application of the foregoing information three sizes of Elementary Schools (8, 12 and 16 home rooms for 240, 360, and 480 students 'loading' respectively), and three sizes of Junior High Schools (12, 16, and 24 home rooms for 360, 480 and 720 student 'loading' respectively). These sizes were chosen for later use in Part C. In TABLE X maximum areas have been shown, (From TABLE VIII: area per student X number of students) followed by maximum support for Junior High. Repayment on a 20-year debenture is then indicated, both as to principal, and as to interest. Assuming that bussing may be continued at 1971 average of $101.00 a student for contract buses--which is the extreme cost that might be expected--comparisons are made in TABLE X of one year, two year, and three year interest costs for each building versus the cost of busing the entire 'loading' of such a school.

Several observations may be made from TABLE X:

(a) Bussing costs at $101.00 per student for the limit "loading" of an Elementary School is only slightly more than the first year's interest repayment.

e.g. Size of School	Busing	Interest
8 rooms: 240 students	$24,240.	$23,350.
12 rooms: 360 students	36,360.	30,600.
16 rooms: 480 students	48,480.	41,900.

Because of the decreasing number of square feet per student as larger schools are involved, the "saving" by interest over bussing becomes greater in relation to larger schools.

(b) Bussing costs at $101.00 per student for the limit "loading" of a Junior High School without industrial arts and home economics are generally slightly more than the first year's interest in smaller schools, and slightly less than the first year's interest in large schools.

e.g. Size of School	Busing	Interest
12 rooms: 360 students	$36,360.	$32,100.
16 rooms: 480 students	48,480.	48,950.
24 rooms: 720 students	72,720.	80,000.

(c) Bussing costs at $101.00 per student for the limit "loading" of a Junior High School with industrial arts and home economics is consistently and significantly less than the first year's interest payment.

e.g. Size of School	Busing	Interest
12 rooms: 360 students	$36,360.	$45,950.
16 rooms: 480 students	48,480.	62,300.
24 rooms: 720 students	72,720.	80,100.

The same sizing differential exists: the difference is less for large schools than for small schools, for the same reason that generally the per-student area in large schools is less than in small schools.

TABLE X

(All numbers rounded off because they are close approximations)

School Building Cost Data
(for selected sizes)

ITEMS	Elementary Schools			Junior High Schools (W- Indicates "with Home Ec. & Indu. Arts)					
	8 HR (240)	12 HR (360)	16 HR (480)	12 HR(W (360)	12 HR (360)	16 HR(W (480)	16 HR (480)	24 HR (W (720)	24 HR (720)
Area	sq.ft. 19,450	sq.ft. 25,450	sq.ft. 34,900	sq.ft. 36,500	sq.ft. 25,500	sq.ft. 49,500	sq.ft. 38,850	sq.ft. 63,600	sq.ft. 52,900
Max. Support	$ 301,500	$ 394,500	$ 541,000	$ 593,000	$ 414,500	$ 804,000	$ 631,500	$ 1,033,500	$ 895,600
1st Payment /20	15,075	19,800	27,000	29,650	20,700	40,200	31,600	51,700	45,000
1st Interest/7 3/4%	23,350	30,600	41,900	45,950	32,100	62,300	48,950	80,100	69,400
Total First Claim	37,425	50,400	68,900	75,600	52,800	102,500	80,550	131,800	114,400
Interest reduces/yr	1,170	1,530	2,100	2,300	1,600	3,100	2,500	4,000	3,500
Annual Transportation for student loading @ $101. each	$ 24,240	$ 36,360	$ 48,480	$ 36,360	$ 36,360	$ 48,480	$ 48,480	$ 72,720	$ 72,720
vs. Interest	23,350	30,600	41,900	45,950	32,100	62,300	48,950	80,100	80,100
2-yr. Trans. vs 2-yr. Int.	$ 48,000 / 45,500	$ 72,000 / 59,670	$ 96,000 / 81,700	$ 72,000 / 89,600	$ 72,000 / 62,600	$ 96,000 / 121,500	$ 96,000 / 95,400	$ 144,000 / 156,200	$ 144,000 / 135,300
3-yr. Trans vs 3-yr Int.	$ 72,000 / 67,700	$ 108,000 / 88,740	$ 144,000 / 121,500	$ 108,000 / 133,250	$ 108,000 / 93,100	$ 144,000 / 180,700	$ 144,000 / 141,850	$ 216,000 / 232,300	$ 216,000 / 201,200

NOTE 1: Maximum support Elem. $15.50 @ sq. ft. gross
Jr. High $16.25 @ sq. ft. gross

NOTE 2: Sizes have been selected because: a common layout in a section subdivision is one Junior High of 24-rooms and three 16-room elementaries; separate schools often build schools of from 1/2 to 2/3 the size of their counterparts, or of about the same size as the public school systems, but about twice as far apart. The sizes are therefore common, and useful for estimating purposes.

(d) Obviously these are extreme cases because it has been assumed that the maximum loading of the school would occur, which is virtually unlikely. (This extreme position was taken to show that if the absolute "worst" should happen, this would be the situation.)

It may readily be seen that if new schools are lightly loaded for the first few years, the bussing costs of the respective students should be almost in direct proportion of the enrolment to the "loading" size of the school: half enrolment--bussing about half interest cost; etc. Although actual cases with all their ameliorating circumstances and unforeseen circumstances are seldom quite as "good" as "cold" calculations, the financial ramifications are so startling as to encourage serious consideration as to how one should proceed.

(e) Additions would not likely be as costly by comparison of interest costs to bussing costs, but the average addition would probably not be much more than 10-15% lower, even if the greatest of care were exercised to limit them in relation to enrolment potential as much as is possible. With such care, relatively similar results should be obtained as for full new schools.

2. Enrolment Potentials

That the birth rate has dropped has been "lightly" stated in many quarters. A look at some facts, and their possible ramifications may be pertinent to reinforce the seriousness of consideration of the points made in B. 1

TABLE XI indicates graphically and statistically the birth rate drop, which has plunged almost 40% since 1958. The major effect has not yet really struck with its full impact upon schools, as school entrance is about 6 years later than the dates given in TABLE XI. It is not inconceivable that school enrolments may drop up to 25% or more in Elementary Schools (some of the effect is already showing in current enrolments), and 35% or more in Junior High thereafter. Because most of the effect upon Elementary Schools will be felt before the impact upon Junior High Schools is of major concern; there may be need to consider needs for the former as quite short-term, and the latter as avoidable <u>if</u> extra Elementary space can be converted (which may be a better idea on paper than in reality, but nevertheless worth future and further consideration).

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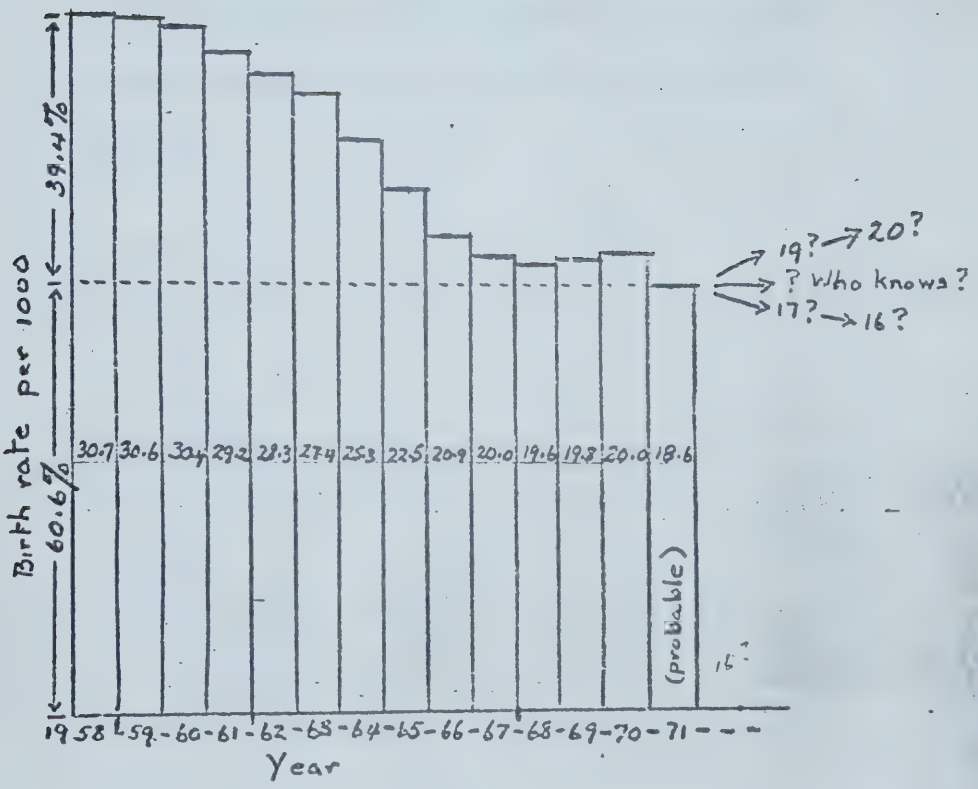
TABLE XI

Alberta Birth Rates
1958 - 1971



Another interesting item is that the "birth-rate syndrome" seems to be delayed in new subdivisions: the forecasts of the first 6 - 10 years is usually about 120% (from experience) of the levelling off which occurs as the subdivision matures and eventually assumes a fairly normal distribution of enrolments. This is a significant trend, rather than an inexorable numerically-forecastable occurrence, but one which should cause extreme caution in sizing elementary schools.

RELATED CONSIDERATIONS

C.

1. The Use of School Bussing, Primarily, to Replace School Building

On paper this may be feasible: there are probably 200 or more "vacant" rooms in each of the public school systems in Edmonton and Calgary, and probably 50-75 in each of the separate systems. (This hazy statement is made because, as far as can be ascertained, nobody knows exactly. A recent questionnaire obtained very highly questionable information. Bluntly, it is doubtful that any direct approach will get an exact statement, and any outside study or count would be difficult, time consuming, and costly, with some doubt that the knowledgeable manpower is available). These spare classrooms are probably scattered, and to consolidate them would cause upheavals within established areas also. Moreover, school systems usually do not choose to operate at the 30-students-per-classroom level that is used in counts for new facilities, and it is foreseen that spare space may not be made available unless a degree of force is exercised which has never before been attempted or even contemplated. Everything would probably hang upon the effectiveness of the motivation used, as full local co-operation would be essential to the success of such a venture.

Moreover, in the analyses done in Parts A and B no consideration has been given to human and political values involved in dealing with parents and students. It is generally accepted that senior high students range far to go to school, and this concept is somewhat accepted at the junior high level. The concept of neighbourhood school at the elementary level is probably very deeply ingrained, and special needs of the "handicapped" and the "disadvantaged" (probably fast approaching 10% of the school population, with higher aspirations in some quarters) is almost as strongly seated. Yet the points may be: how much may (should) centralization be promoted?---which is to some extent what bussing to other schools is; and must some mid-point be accepted, as an emergency measure, such as limited bussing for grades 4 and up with as far as possible, neighbourhood provision for the lower grades? The counter-proposition is that all students range afar on buses in rural areas, and why the special provision of neighbourhood arrangements for urban areas? Other than to state the obvious, that there is a wide range of legitimate human and political values not involved in an economic and physical study but which must temper it, this report is not best fitted to rate their counterbalance against the information it is providing, and leaves it for others to apply this leaven.

Nevertheless, very serious consideration should be given to the use of bussing if economies must be exercised, because, short of schools being full to their'rating' (i.e. to 30 per home room, on an average) interest costs are considerably higher than bussing costs, at least by the reciprocal of the fraction that enrolment is of the "rating".

e.g. Fraction enrolment is of "rating"	Interest compared to bussing costs
3/4	4/3 or more
1/2	twice or more

2. A Freeze on School Building

It is anticipated that enrolments in each of the four Calgary-Edmonton school systems will reduce, annually. Yet, at the same time, new subdivisions, containing thousands of people in new homes where there were previously no schools, will probably continue to develop, even though each system's total enrolment may at the same time decrease over a period of about six years in elementary grades, possibly by upwards of 6% (the greater forecast of the dropping birthrate will probably be offset by immigration into these cities), by upwards of 10% in Junior high schools in about eight or nine years, and in senior high in somewhat over a decade at about the same rate. These forecasts (or 'hunches'), though more severe than

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some forecasts being produced, may even be low, as they have been influenced by an optimistic opinion that immigration into these cities will remain high to counterbalance the direct extrapolation of birth rate figures. Of concern is the opinion that there will be two trends: a higher decrease in older areas (and new ones today may be expected to join this trend increasingly after eight or more years); an apparent contradiction of this trend in new subdivisions as they develop. Therefore it is not this report's opinion at this time that there is any long-term possibility of salvaging all present school buildings now in existence towards the centre of these cities unless very extensive school bussing becomes a long-term fact of suburban city life. (They will have served one and probably many generations of students, and it may have to be rationalized that their demise is part of the price of "progress" and the result of an unavoidable change in life style).

The major concern, overdue, is felt to be a need for some means of buying time to identify clearly the ultimate sizing of newer schools, which cannot be done by sizing them at 3-year enrolment forecasts as is now being done, or even at current enrolments. Because of the way in

which new subidvisions initially seem to contradict child distributions found in normal populations (discussed at the end of Part B), even a census count of pre-school children is a poor predictor.

It is not felt that a freeze on school building is feasible, or realistic, but it is felt that a severe limitation should be placed on new school buildings and additions, using other means of accommodation to delay final building until it is reasonably clear that the end result will not exceed the long-term need. Otherwise presently inevitable capital "losses" will continue to mount. Bussing on a short-term basis is felt to be one alleviation. However, there are other concepts. The problem is being compounded because, whereas about four years ago a limited number of subdivisions were developed and each was usually filled in a relatively short time (2-3 years,which gave rise to the three-year-projection of enrolments basis for sizing schools), now a multiplicity of subdivisions with an almost-impossible time scheduling of completions appears to be the rule rather than the exception. No one can safely predict current sizings that are not likely to be partly, and possibly largely, vacant for several years.

Rather than a general freeze, it may be more realistic to build basic initial units which are greatly undersized,

but which have provisions for elasticity, until trends are clearly established. For example, a core school may provide for a very limited enrolment within its perimiter, but may allow for relocatable or portable facilities which may enable the second stage to be deferred until a sizeable and fairly clearly-definable addition is essential. This at first sounds like a study done by the S.E.F.Program (Study of Educational Facilities, Metro Toronto), except that this study postulated and basically designed a very complex relocatable system that in the opinion of this report priced itself out of the market and into the realm of an interesting but impractical fantasy. It is to be noted that there are probably about 600 portable classrooms in Alberta, of which over 400 are believed to be in these two cities. If enrolments do drop as they are expected to do they ought to be useable in increasing numbers for this purpose. (It is also understood that two Regional Colleges had a significant number of such units which were paid for by Provincial funds---if they can be obtained when not needed, which may be about now.) These portables probably can be appended to the core rather than being set off in the school yard, under current fire regulations, and if such a scheme were to be seriously entertained the details should be worked out with the Fire Commissioner. (A problem, possibly not insuperable, is that local city regulations have often gone beyond what the Provincial Fire Commissioner would

basically accept—the National Building Code, being understood to be a set of "minimum" standards, is felt to be many things to many people, with wide variations in rulings emanating therefrom.) TABLE XII sets out such a core scheme for an elementary school, and TABLE XIII sets out one for a junior high school.

TABLE XII

Hypothetical 16 - Room Elementary School
- With 6 - Rooms Built Initially -
(Minimum 180; maximum 480 with ten portables)

		Sq. Ft.
Instructional		
	5 Classrooms @ 750 sq. ft.	4,500
	1 Science Classroom	1,000
	1 Ancillary Classroom @ 1,000	1,000
Gymnasium		
	Phys. Ed. Floor	2,400
	Stage	800
	Phys. Ed. Storage	300
Library		1,500
	Total net instructional	11,400
Non-Instructional @ 2/3 Instructional		7,600
	Gross area	19,000
	@ $15.50 max. support (approx)	$300,000.
If a black-top apron of 9,000 sq. ft. were given special support to handle 8-10 portables on site, @ 50¢ sq. ft.		$4,500.
If a special allowance for electrical connections were set up for portables @ about		2,000.
		$306,500.

NOTE: By a recent survey (School Buildings Branch) there are said to be about 600 portables in the Province, and each Calgary-EdmontonSystem has many. It is not inferred that new portables be recognized, but that existing ones be "found" within the respective city, despite excuses.

TABLE XIII

Hypothetical 16 - room Junior High School
With 6 Rooms Built Initially
(Minimum 180; maximum 480 students with ten portables)

		Sq. Ft.
Instructional		
	4 Classrooms @ 750	3,000
	2 Science Experience Class-rooms @ 1,000	2,000
	1 Ancillary Classroom @ 1,000	1,000
Gymnasium		
	Phys. Ed. Floor	4,000
	Stage	800
	Phys. Ed. Storage	200
Library		1,500
	Total net instructional	12,500
Non-Instructional @ 2/3 Instructional		8,250
	Gross area	20,750
	@ $16.25 max. support (approx)	345,000
	If black-top apron of 9,000 sq. ft. were given special support to handle 6 - 8 portables on site, @ 50¢	$4,500
	If special allowance for electrical connections were set up for portables at about	2.000.
		$351,500.

NOTE: By a recent survey (School Buildings Branch) there are said to be about 600 portables in the Province, and each Calgary-Edmonton System has many. It is not inferred that new portables be recognized, but that existing ones be "found" within the respective city, despite excuses.

Some comparative figures are given in TABLE XIV.

TABLE XIV

Comparative Estimated Costs of Core School
In Tables XII & XIII and Corresponding Traditional Schools

Type	Core School Support	Core School 1-Year Int.	Traditional 16-Room School Support	Traditional 16-Room School 1-Year Int.
Elementary	$307,000	$23,750	$541,000	$41,900
Junior High	$352,000	$25,000	$631,000	$49,000

NOTE: No allowance has been made for moving portables, which is not now supported within a school system, but should it be conceived this should be supported (realizing the precedent thus being set) an estimate of $2,000 a move may be realistic for estimating purposes, or $3,000. if upgrading is involved. Not all possible portables would likely be needed, and for this reason estimating is difficult.

This scheme, or any similar one, should not be inferred to be a long-term substitute for full new construction, but the possible saving through the deferring of premature commitment of capital and interest should lend some attraction. These are examples, for which there may be many similar variations. Costs are slightly more than for corresponding 16-room schools, but less than for fourteen room schools, and the possibilities of conserving capital assets, until decisions are firm, are demonstrably significant. The socio-political ramifications though not discussed, should not be forgotten. Such a scheme as this may take a lot of "selling".

Although senior high schools have not been dealt with in this report because they are relatively infrequent projects and highly diverse as to cost, ranging from similar per student-place to junior high schools ($1,550 - $2,000) to nearly twice this for fully composite schools (which have not been recognized for several years), a comment may be pertinent. Because of significant enrolment drops known to the Directors' Council, the general acceptance of travel to the school by students, and the strong belief that most current high schools have enrolments well below their "rating", it is doubted that anything but a freeze is merited, even on ones now being planned.

3. An Eclectic Approach

This report has obviously favored a combination of increased transportation and restricted (deferred) building, However, it is added that there is no confidence expressed or implied that a closed and immutable system can be enunciated which will fit all cases. Rather, it is felt that intense individual study must be involved in individual situations: transportation will probably be more possible in some situations than others; core schools may be useful in some situations but doubtful as a general application; selective building (i.e. in key areas only) with localized transportation (i.e. from within relatively

short distances of up to 5 miles or so) may be a better solution than either of the foregoing in some situations; no additions to existing older schools may generally be the best policy, but not in all cases; and so forth though other possibilities not at this time envisioned.

Any reduction or revision of current practices will not likely be easy to attain, and even in this an eclectic approach may be of paramount importance, enlisting the power and prestige of the Government, Minister, school boards, and public opinion. Extreme economy has influenced many recent recognitions, and yet the reaction has not indicated much readiness at the local level to abandon the lush pace of more munificent times, and some form of catharsis may have to be used to reschedule functions. Without general co-operation, external controls may have very limited effect, as it is no secret that regulations and controls can be manipulated contrary to their intentions; there is little need for another scurry to manipulate new regulations to maintain the status quo.

4. Recommendations: (provided in broad outline only)

(a) A revision of city bussing support should be looked at very carefully, with an eye to equalizing it relatively closely to actual cost, or normalizing it to rural support

if this cannot be countenanced, with the very firm proviso that bussing must be implemented as far as is possible in lieu of both additions and new schools. There may be reason to believe that no local cost for bussing may sweeten its present unpalatability, even more so if school building costs increase and support doesn't.

As a corollary, though irrelevant to this report, it might be well to have some reported costs of school bussing investigated and practices co-ordinated. Examination of TABLES I, II, and III and other derived Tables may substantiate this suggestion.

A further corollary may be a need for some form of system check, or spot-check as to the degree of implementation, as well as a requirement that full exercise of bussing possibilities shall be a prerequisite to application to the School Building Board.

(b) The core-school system should be promoted as a prerequisite second study on the part of the school board in application for new schools.

(c) A third line of action should be the provision of a limited but traditional school only on the basis of combination with transportation from other subdivisions to a one-year projection of enrolments.

(d) All current and future high school building should be suspended, pending validation by the pertinent school

board with the School Buildings Board on the above bases (a) and (c).

(e) A vigorous and detailed search of portable facilities should be started as soon as possible. Also clarification with the Provincial Fire Commissioner regarding the use of portables as part of a core should be done if the core-school concept is to be seriously entertained.

(f) Strong and official backing should be given by the Minister.

(g) All the above are extreme positions. How extreme one should or may be is beyond the competence of this report.

(h) Whatever is done should receive the official backing and promotion of the Minister. (In 1968 an extremely heated financial crisis involving the availability of debenture funds was cooled off very effectively by forceful personal and public intervention of the then-Minister; whereas internal Departmental action had earlier failed. It is the judgment of this report that this will be necessary again.)

E. & O. E.

TABLE I

Passengers, Rates, and Costs of School Bus Transportation
Calgary and Edmonton
Summarized from Department of Education Form 1302-2A-71
(Claims against S.F.P.Fund for Transportation)
1971

System ↓ (Explanation →)	1 Number of Eligible Students (a) Yellow Buses	(b) Public Trans.	2 Reported Cost to System per Student (a)	(b)	3 Reported Cost in Total (a)	(b)	4 90% of Cost to System per Student (a)	(b)	5 Cost @ 90% in Total (a)	(b)	6 Provincial Support per Pupil (a)	(b)	7 Claim Paid (a)	(b)	8 Difference Between Cost and support ("Loss") (a)	(b)	Total	9 Difference Between Cost and 90% of Cost ("Loss")
	Average of March & Sept. enrolments being transported		Rounded to nearest cent		Passengers shown in Col. 1xCol.2 will approximate, the slight error being caused by the rounded off figure in 2.		Computed by taking 90% of col. 3, and dividing by col. 1, to nearest cent		Passengers shown in Col. 1x Col.4 will approximate etc.(as in Col. 3 explan. nations		For (a) support is at least rate 1967-71. For (b) support is at lowest rate 1967-71 at 90% of cost		Based on Col.1 x Col.6		Col. 3 - Col. 7			Col. 3 - Col. 7
Calgary S.D.#19	2,292.5	1,504	$106.11	$ 44.21	$243,252	$ 66,495	$ 95.50	$ 39.79	$218,927	$ 59,846	$95.00	$33.43	$217,788	$ 50,279	$25,464 + 16,216 =		41,680	$1,139 + 9,567 = $ 10,706
Calgary RCS #1	444	3,741	93.63	48.84	41,572	182,710	84.27	43.96	37,418	164,439	93.63	37.43	41,572	140,026	- + 42,684 =		42,684	(+4,157)+24,413 = 20,256
Edmonton S.D.#7	5,367.5	3,600	105.11	47.96	564,203	172,651	95.65	43.16	507,783	155,386	95.00	25.86	509,913	93,096	54,290 + 79,555 =		133,845	(+2,130)+62,290 = 60,160
Edmonton RCS#7	1,658	3,579	81.19	64.59	134,623	231,156	73.08	58.13	121,161	208,040	78.88	14.24	130,783	50,965	3,840 +180,191 =		184,031	(+9,623)+197,075 = 187,452
	9,762T	12,424T	$100.76A	$ 52.56A	$983,650T	$653,012T	$ 90.69A	$ 47.30A	$885,286T	$587,711T	92.20A	26,91A	900,056T	334,366T	83,594T+318,646T=		402,240T	(+14,770)+253,349T=238,579
				1970														
Calgary S.D.#19	2,238	2,727.5	137.56	37.14	307,865	101,302	123.81	33.43	277,079	91,172	95.00	33.43	212,610	91,180	95,255 + 10,140 =		105,395	64,469 + (+$2) = 64,467
Calgary RCS#1	534.5	3,413	143.53	47.17	76,715	160,988	129.17	42.45	69,044	144,889	97.66	37.43	52,199	127,749	24,516 + 33,239 =		57,755	17,845 +17,140 = 34,985
Edmonton S.D.#7	4,871	4,745	104.03	47.74	506,734	226,522	93.63	42.97	456,061	203,870	95.00	25.86	462,745	122,706	43,989 +103,816 =		147,805	(+6,684)+81,164 = 74,480
Edmonton RCS#7	1,725.5	3,454.5	94.02	67.75	162,229	234,034	84.62	60.97	146,006	210,631	78.88	14.24	136,107	49,192	26,122 +184,842 =		210,964	9,899+161,439 = 171,338
	9,369.0T	14,340T	$112.45A	$449.71A	$1,053,543T	$712,846T	$101.20A	$ 45.36A	$948,190T	$650,562T	92.18A	26,56A	863,661T	390,827T	189,882 +332,037 =		521,919	85,529+259,735 = 345,264
																		(+2,686)
															$1,343 = 31,102T			1,365 & 897 = 2,262T

A = Average
T = Total

* Calgary figures for 1971 were received by the Grants Branch by telephone, May 2, 1972 as the usual Form 1302-2A had not been submitted at that date.

TABLE II
Passengers, Rates, and Costs of School Bus Transportation
Other Urban Centres
(Excludes Edmonton & Calgary)
1971

System Districts	[1] No. of Eligible Students (a) Yellow Buses	(b) Public Trans.	[2] Reported Cost to System per Student (a)	(b)	[3] Reported Cost in Total (a)	(b)	[4] 90% of Reported Cost per Student (a)	(b)	[5] Cost @ 90% of Total (a)	(b)	[6] Provincial Support per pupil (a)	(b)	[7] Claim Paid in Total (a)	(b)	[8] Diff. Between Cost & Support ("Loss") (a)	(b)	Total	[9] Diff. between Cost & 90% of Cost ("Loss") (a)	(b)	Total
St. Albert	890.5	-	$ 51.06	$ -	$45,471	$ -	$ 45.96	$ -	$40,924	$ -	$49.15	$ -	$43,768	$ -	1,703	& -	= 1,703	(+2,844)	& -	= (+2,844)
Lethbridge	1,000.0	45.5	48.94	15.30	48,936	696	44.04	13.76	44,042	626	46.88	13.76	46,880	626	2,056	& 70	= 2,126	(+2,838	& -	= (+2,838)
Medicine Hat	175.0	17.5	53.59	52.57	9,379	920	48.23	47.31	8,441	828	30.80	15.50	5,390	271	3,989	& 649	= 4,638	3,051	& 557	= 3,608
Red Deer	225.0	39.0	35.01	40.00	7,878	1,560	31.51	36.00	7,090	1,404	12.89	27.27	2,900	1,064	4,978	& 496	= 5,474	4,190	& 340	= 4,530
Camrose	146.5	-	43.69	-	6,400	-	39.32	-	5,760	-	43.69	-	6,401	-	(-1)	& -	= (-1)	(+641)	& -	= (+641)
Lloydminster	34.5	-	29.71	-	1,025	-	26.75	-	923	-	29.71	-	1,025	-	-	-	= -	(+102)	& -	= (+102)
Grande Prairie	313.5	-	86.61	-	27,152	-	77.95	-	24,437	-	83.03	-	26,030	-	1,122	& -	= 1,122	(+1,593)	& -	= (+1,593)
R.C.S.S. Districts																				
Lethbridge	485.5	-	41.75	-	20,272	-	37.58	-	18,245	-	41.75	-	20,270	-	2	& -	= 2	(+2,025)	& -	= (+2,025)
Wetaskiwin	9.5	-	123.79	-	1,176	-	111.37	-	1,058	-	33.63	-	319	-	857	& -	= 857	739	& -	= 739
Red Deer	895.0	-	26.41	-	23,640	-	23.77	-	21,276	-	21.92	-	19,618	-	4,022	& -	= 4,022	1,658	& -	= 1,658
Medicine Hat	539.0	36.0	47.39	35.42	25,541	1,275	42.65	31.86	22,987	1,147	46.09	31.86	24,843	1,147	698	& 128	= 826	(+1,856)	& -	= (+1,856)
Drumheller	100.5	-	63.28	-	6,360	-	56.96	-	5,724	-	53.37	-	5,364	-	996	& -	= 996	360	& -	= 360
Grande Prairie	387.0	-	90.50	-	35,025	-	81.45	-	31,523	-	67.67	-	26,188	-	8,837	& -	= 8,837	5,335	& -	= 5,335
Camrose	125.0	-	20.25	-	2,531	-	18.22	-	2,278	-	17.77	-	2,221	-	310	& -	= 310	57	& -	= 57
St. Albert	274.5	-	83.29	-	22,864	-	74.97	-	20,578	-	82.60	-	22,674	-	190	& -	= 190	(+2,096)	& -	= (+2,096)
Average Total	$5,601.0T	138.0T	$30.64A	$32.25A	$283,650T	$4,451T	$45.58A	$29.02A	$255,286T	$4,005T	$45.33A	$22.52A	$253,891T	$3,108T	$29,759	$1,343	= 31,102T	1,395	& 897	= 2,292T

TABLE II

Passengers, Rates, and Costs of School Bus Transportation
Other Urban Centres
(Excludes Edmonton & Calgary)
1970

No.	System Districts	1 No. of Eligible Students (a) Yellow Buses	(b) Public Trans.	2 Reported Cost to System per Student (a)	(b)	3 Reported Cost in Total (a)	(b)	4 90% of Reported Cost per Student (a)	(b)	5 Cost @ 90% of Total (a)	(b)	6 Provincial Support per Pupil (a)	(b)	7 Claim Paid in Total (a)	(b)	8 Diff. Between Cost & Support ("Loss") (a)	(b)	Total	9 Diff. Between Cost & 90% of Cost ("Loss") (a)	(b)	Total
3	St. Albert	748.0	-	$56.93	$ -	$ 42,601	$ -	$ 51.26	$ -	$ 38,341	$ -	$49.15	$ -	$36,764	$ -	5,837	& -	= 5,837	1,577	& -	= 1,577
51	Lethbridge	859.0	23.0	50.94	32.35	43,761	744	45.85	29.13	39,385	370	46.88	16.62	40,270	382	3,491	& 362	= 3,853	(+885)	& 288	= (+597)
76	Medicine Hat	157.5	20.0	72.22	69.30	11,374	1,386	64.70	62.35	10,237	1,247	30.80	15.50	4,851	310	6,523	& 1,076	= 7,599	5,386	& 937	= 6,323
104	Red Deer	194.5	10.0	37.51	30.30	7,296	303	33.76	27.30	6,566	273	12.89	27.27	2,507	273	4,789	& 30	= 4,819	4,059	& -	= 4,059
1315	Camrose	134.5	-	44.61	-	6,000	-	40.15	-	5,400	-	44.61	-	6,000	-	-	& -	= -	(+600)	& -	= (+600)
1753	Lloydminster	25.5	-	32.43	-	827	-	29.18	-	744	-	32.43	-	827	-	-	& -	= -	(+ 83)	& -	= (+ 83)
2357	Grande Prairie	243.5	-	92.14	-	22,437	-	82.93	-	20,193	-	83.03	-	20,218	-	2,219	& -	= 2,219	(+ 25)	& -	= (+ 25)
P.C.S.S. Districts																					
9	Lethbridge	398.5	2.5	57.05	11.20	22,736	28	51.35	10.00	20,462	25	42.76	10.08	17,040	25	5,696	& 3	= 5,696	3,422	& -	= 3,422
15	Wetaskiwin	27.2	-	63.46	-	1,726	-	57.10	-	1,553	-	33.63	-	915	-	811	& -	= 811	638	& -	= 638
17	Red Deer	862.5	-	24.00	-	20,696	-	21.60	-	18,626	-	21.92	-	18,906	-	1,790	& -	= 1,790	(+280)	& -	= (+280)
21	Medicine Hat	550.0	23.5	46.09	41.66	25,348	979	41.48	37.49	22,813	881	46.09	33.72	25,350	792	(+ 2)	& 187	= 185	(+2,537)	& 89	= (+2,448)
25	Drumheller	99.0	-	63.88	-	6,324	-	57.49	-	5,692	-	53.37	-	5,284	-	1,040	& -	= 1,040	408	& -	= 408
28	Grande Prairie	277.0	-	79.49	-	22,019	-	71.54	-	19,817	-	67.67	-	18,745	-	3,274	& -	= 3,274	1,072	& -	= 1,072
60	Camrose	139.0	-	17.77	-	2,470	-	15.99	-	2,223	-	17.77	-	2,470	-	-	& -	= -	(+247)	& -	= (+247)
P.S.6	St. Albert	243.0	-	118.72	-	28,848	-	106.84	-	25,963	-	82.60	-	20,072	-	8,776	& -	= 8,776	5,891	& -	= 5,891
		4,958.7T	79.0T	$ 53.33A	$43.54A	$264,463T	$3,440T	$ 48.00A	$39.19A	$238,015T	$3,096T	$44.41A	$22.56A	$220,219T	$1,782T	$44,244	& $1,658	=45,902T	17,796	&1,314	=19,110T

A = Average
T = Total